Environment Canada / Environnement Canada

National Ove[illegible]

[illegible]al Pollutant Rele[illegible]

Canadian Environmental Protection

www.ec.gc.ca/npri

Summary of Data

Canada

National and Regional National Pollutant Release Inventory (NPRI) Offices

National Office
National Pollutant Release Inventory
Environment Canada
Place Vincent Massey, 9th Floor
351 St. Joseph Boulevard
Gatineau, QC
K1A 0H3
Tel: (819) 953-1656
Fax: (819) 994-3266
E-mail: NPRI@ec.gc.ca

Newfoundland and Labrador, Prince Edward Island, New Brunswick and Nova Scotia
National Pollutant Release Inventory
Environment Canada
Queen Square, 16th Floor
45 Alderney Drive
Dartmouth, NS
B2Y 2N6
Tel: (902) 426-4482 / 426-4805 / 426-5037
Fax: (902) 490-0722
E-mail: NPRI_ATL@ec.gc.ca

Quebec
National Pollutant Release Inventory
Environment Canada
105 McGill Street, 4th Floor
Montreal, QC
H2Y 2E7
Tel: (514) 283-7303 / 283-0248 / 496-1832
Fax: (514) 496-6982
E-mail: INRP_QC@ec.gc.ca

Ontario
National Pollutant Release Inventory
Environment Canada
4905 Dufferin Street, 2nd Floor
Downsview, ON
M3H 5T4
Tel: (416) 739-5955 / (416) 739-5894
Fax: (416) 739-4326
E-mail: NPRI_ONTARIO@ec.gc.ca

NPRI/ON MOE Reg.127
Joint Technical Assistance Centre
Tel: (416) 739-4707

Manitoba, Saskatchewan, Alberta, Northwest Territories and Nunavut
National Pollutant Release Inventory
Environment Canada
Twin Atria #2, Room 200
4999-98 Avenue
Edmonton, AB
T6B 2X3
Tel: (780) 951-8989
Fax: (780) 951-8808 / 495-2615
E-mail: NPRI_PNR@ec.gc.ca

British Columbia and Yukon
National Pollutant Release Inventory
Environment Canada
#201-401 Burrard Street
Vancouver, BC
V6C 3S5
Tel: (604) 666-3221 / 666-3890 / 666-9864
Fax: (604) 666-6800
E-mail: NPRI_PYR@ec.gc.ca

National Pollutant Release Inventory
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91782 Alaska Highway
Whitehorse, YT
Y1A 5B7
Tel: (867) 667-3402
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Summary of Data

Canadian Environmental Protection Act, 1999

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1. Introduction

The National Pollutant Release Inventory (NPRI) is at the centre of the Government of Canada's efforts to track toxic substances. It is a legislated inventory of pollutants released to the environment. The NPRI was established in 1992 to inform Canadians about releases of pollutants in their communities, including the amounts discharged to the air, water and land and by underground injection and the amounts sent to other facilities for disposal, treatment or recycling and energy recovery. The NPRI is constantly evolving. Since it was established, substances have been added and deleted, the thresholds at which substances are reported have been adjusted, and the scope of the inventory has been expanded to collect data on recycling and pollution prevention. Further refinements are planned for future years. Please refer to **Appendix A** for information on:

- what is new for the 2002 NPRI,
- the NPRI substance list for 2002,
- the 2002 National Overview Series, and
- new groupings for releases and transfers.

See **Appendix B** for definitions of releases, disposals and transfers.

In 2002, criteria air contaminants (CAC) were added to the NPRI for the first time. As a result, the number of NPRI substance reports in the 2002 NPRI has almost doubled compared to 2001. For the purpose of comparing the 2002 data with those submitted in 2001, the information collected on CAC for 2002 are summarized separately. All non-CAC substance data collected for the 2002 reporting year will be referred to as "NPRI pollutants". The reasons for separating CAC substance data from non-CAC data are as follows:

- The information reported for CAC is limited to releases to air. However, the reports of other pollutants cover releases to all environmental media—air, water and land. They also cover disposal and recycling.
- Reporting separately allows for better comparison to historic NPRI data.
- The information for CAC from point sources for 2002 can be presented along with historic information on area sources to give a more complete picture of overall releases.

There are relatively few CAC, and they have always been discussed individually because each one poses different risks to human health and the environment. NPRI pollutants are sometimes grouped together to reveal trends, but it is not correct to add the CAC to the other NPRI pollutants because many NPRI pollutants are also VOCs and this would lead to double counting. (See *2002 National Overview – Reporting Requirements*, **section 2.9**, for more information on double counting.)

The complete list of CAC and non-CAC data for the 2002 reporting year can be found on the NPRI Web site at **www.ec.gc.ca/npri**.

2. Summary of NPRI Pollutant Data for 2002

For the 2002 reporting year, 3 191 facilities submitted a total of 14 638 substance reports for 208 pollutants (see **table 2–1**). Compared with 2001, this was an increase of 531 (19.9%) in the number of reporting facilities, an increase of 2 631 (21.9%) in the number of reports and an increase of seven (3.5%) in the number of pollutants reported. These increases are due largely to greater efforts by the NPRI regional offices to encourage facilities to comply with the reporting requirements.

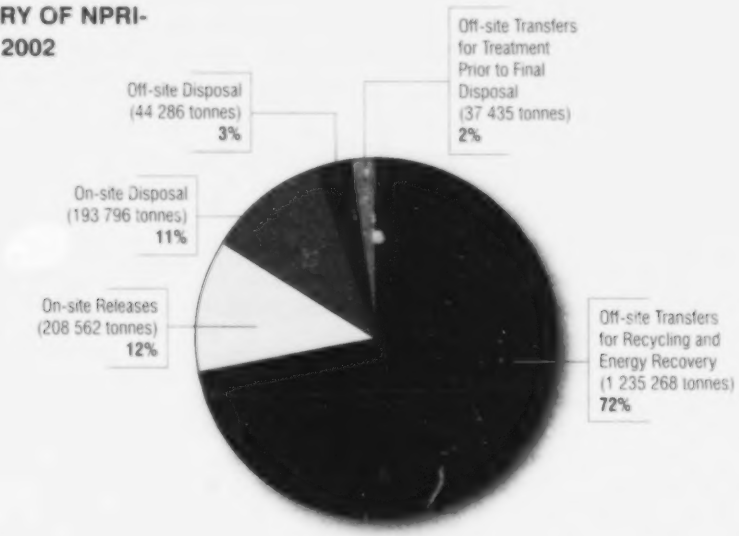
The releases and transfers of all pollutants in 2002 can be broken down as follows (see also **figure 2-1**):

- 208 562 tonnes (12%) – on-site releases;
- 193 796 tonnes (11%) – final disposal (on site);
- 44 286 tonnes (3%) – final disposal (off site);
- 37 435 tonnes (2%) – off-site transfers for treatment prior to final disposal; and
- 1 235 268 tonnes (72%) – off-site transfers for recycling and energy recovery.

(See **Appendix A** for definitions of release groupings.)

Figure 2–1

NATIONAL SUMMARY OF NPRI-POLLUTANTS FOR 2002


Off-site Transfers for Treatment Prior to Final Disposal (37 435 tonnes) 2%
Off-site Disposal (44 286 tonnes) 3%
On-site Disposal (193 796 tonnes) 11%
On-site Releases (208 562 tonnes) 12%
Off-site Transfers for Recycling and Energy Recovery (1 235 268 tonnes) 72%

From 2001 to 2002, the following changes in releases and transfers off site took place (see also **table 2–1**):

- On-site releases increased by an estimated 27 445.9 tonnes (15.2%) from 2001.
- On-site final disposals decreased by 994 897 tonnes (83.7%) from 2001. (See **Appendix B** for more information on on-site disposal.)
- Off-site final disposals increased by 594.4 tonnes (1.4%) from 2001.
- Off-site transfers for treatment prior to disposal decreased by 3 179.7 tonnes (7.8%) from 2001.
- Off-site transfers for recycling and energy recovery increased by 107 218.2 tonnes (9.5%) from 2001.

More information on the facilities that reported to the NPRI for the 2002 reporting year and a summary of individual pollutant releases per medium (air, water and land) can be found on the NPRI Web site at **www.ec.gc.ca/npri**.

Table 2–1

NATIONAL SUMMARY OF NPRI POLLUTANTS (2001–2002)

	2001	2002	Change 2002–2001	% Change 2002–2001
Total Facilities	2 660.0	3 191.0	531.0	19.9
Total Reports	12 007.0	14 638.0	2 631.0	21.9
Pollutants Reported	201.0	208.0	7.0	3.5
1. On-site Releases (tonnes)				
Air	124 613.0	129 778.2	5 165.2	4.1
Water	51 589.7	72 969.0	21 379.0	41.4
Land				
Spills	33.7	715.2	681.5	2 022.2
Leaks	9.9	8.8	-1.1	-11.1
Other	4 688.0	4 901.7	213.7	4.6
Land Subtotal	4 731.9	5 625.8	893.9	18.9
Total On-site Releases	181 116.5	208 562.4	27 445.9	15.2
2. Final Disposal (tonnes)				
On-site Disposal				
Landfill	26 486.1	24 390.2	-2 059.9	-7.9
Land Treatment	879.8	2 401.8	1 522.0	173.0
Underground Injection	161 327.0	167 004.3	5 677.3	3.5
Total	188 692.9	193 796.4	5 076.5	2.7
Off-site Disposal				
Landfill	29 758.3	30 912.2	1 153.9	3.9
Land Treatment	2 472.3	2 307.6	-164.7	-6.7
Underground Injection	9 083.3	9 010.7	-72.6	-0.8
Storage	2 377.7	2 055.5	-322.2	-13.6
Total	43 691.6	44 286.0	594.4	1.4
3. Off-site Transfers for Treatment Prior to Final Disposal (tonnes)				
Physical Treatment	1 902.5	2 359.6	457.1	24.0
Chemical Treatment	12 196.0	8 041.3	-4 154.7	-34.1
Biological Treatment	2 465.7	961.5	-1 504.2	-61.0
Incineration	9 990.2	10 798.1	807.9	8.1
Treatment at a Municipal Sewage Treatment Plant	14 060 3	15 274.4	1 214.1	8.6
Total Off-site Treatment	40 614.6	37 434.9	-3 179.7	-7.8
4. Off-site Transfers for Recycling and Energy Recovery (tonnes)				
Recycling	1 118 247.7	1 226 344.9	108 097.2	9.7
Energy Recovery	9 801.9	8 922.8	-879.1	-9.0
Total Off-site Transfers for Recycling and Energy Recovery	1 128 049.6	1 235 267.8	107 218.2	9.5

***Note**: Because of rounding of release and transfer quantities, the totals may not equal the sum of the individual values.*

3. Summary of Criteria Air Contaminants (CAC) Reported to the NPRI

In 2002, the criteria air contaminants (CAC) were added to the NPRI substance list so that more comprehensive data would be available to governments and the public. Information on CAC emissions enables governments to assess whether risk management by various industrial sources of CAC is reducing emissions. This kind of information is needed by governments so that they can meet the requirements of various inventories and programs, both domestic and international. For the modelling of air quality and other purposes, emission inventories must be completed for all sources of emissions (industrial, commercial, mobile, natural and household). These inventories containing all sources of emissions have been compiled for many years; they are known as comprehensive emission inventories. The collection of CAC data by the NPRI is a new and more efficient means of obtaining information about these emissions.

Table 3–1 summarizes by pollutant the air releases reported by the 3 048 facilities that met the reporting requirements for 2002. As can be seen, facility releases of CAC are not always the primary source of all releases to air in Canada.

Table 3–1

2002 CAC EMISSIONS COMPARED WITH 2000 NATIONAL COMPREHENSIVE CAC EMISSIONS

Pollutant	2002 CAC Reported under the NPRI (tonnes)	2000 National Comprehensive CAC Emissions (tonnes)*	% of 2000 CAC Emissions
Total Particulate Matter (TPM) < 100 microns**	226 454	16 372 382	1
Particulate Matter with a Diameter ≤ 10 microns (PM_{10})**	108 678	5 135 494	2
Particulate Matter with a Diameter ≤ 2.5 microns ($PM_{2.5}$)**	61 058	963 305	6
Sulphur Dioxide (SO_2)	1 977 312	2 352 424	84
Oxides of Nitrogen (expressed as NO_2)	577 332	2 603 525	22
Volatile Organic Compounds (VOC)	244 021	2 751 607	9
Carbon Monoxide (CO)	974 327	11 282 385	9

* Includes all sources. See the 2000 comprehensive CAC inventory attached as **Appendix C**.

**Year 2000 Comprehensive CAC inventory includes both filterable and condensable particulate matter.

4. CEPA Toxic Substances Listed in the NPRI

4.1 Introduction

Some substances listed in the NPRI were added because individually, or as a member of a class of substances, they have been scientifically assessed and determined to meet the definition of toxic under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). This section provides a general overview of the substances currently listed in the NPRI that met this definition as of December 18, 2003. That is also the effective date of the 2002 NPRI database referred to in this report. (Reporting for the 2002 calendar year had to be completed by June 1, 2003.)

4.2 CEPA Toxic Substances

CEPA 1999 is Canada's primary piece of federal pollution prevention and environmental legislation. The Act gives the federal government the tools for protecting the environment and human health, and establishes strict deadlines for controlling toxic substances.

Under the Act, a substance may be considered to be toxic if it enters, or may enter, the environment in a quantity or concentration or under conditions that:

- have or may have an immediate or long-term harmful effect on the environment or its biological diversity;
- constitute or may constitute a danger to the environment on which life depends; or
- constitute or may constitute a danger in Canada to human life or health.

For example, lead is a toxic substance. Exposure to even small amounts of lead can be hazardous to human health, especially for infants, young children and pregnant women. Environment Canada and Health Canada continue to assess the environmental and health risks of new and existing substances.

CEPA 1999 requires that toxic substances be managed to prevent or minimize the risks they pose to the environment and human health. Toxic substances that are bioaccumulative, persistent and result primarily from human activity are targeted for virtual elimination. The Minister of the Environment has two years to propose, and a further 18 months to finalize, "preventive or control" measures for substances that have been determined to be toxic by an assessment under the Act. These measures include management tools such as regulations, pollution prevention plans, economic instruments and codes of practice. More information can be found on Environment Canada's CEPA Environmental Registry at **www.ec.gc.ca/CEPARegistry/default.cfm**.

4.3 CEPA Toxic Substances Listed in the NPRI in 2002

Eighty-two substances in the 2002 NPRI have been determined to be toxic under CEPA 1999 (see **table 4–1**). Information on the release, disposal and recycling of hundreds of substances, including toxic substances, is reported to the NPRI. This makes it easier to understand, track and manage, through environmental indicators and regulatory and voluntary programs, the risks that toxic substances may pose to the environment and human health. More information on toxic substances in Canada can be found at **www.ec.gc.ca/toxics** and **www.ec.gc.ca/CEPARegistry**.

Table 4–1

CEPA TOXIC SUBSTANCES LISTED IN THE 2002 NPRI

CAS No.	Substance	Substance/Class on the List of Toxic Substances
75-07-0	Acetaldehyde	
107-02-8	Acrolein	
75-05-8	Acrylonitrile	
68920-70-7	Alkanes, C^{10-13}, chloro	
85535-84-8	Alkanes, C^{6-8}, chloro	
NA	Ammonia (total)	
NA	Arsenic and its compounds	
1332-21-4	Asbestos (friable form)	
71-43-2	Benzene	
56-55-3	Benzo(a)anthracene	Polycyclic aromatic hydrocarbons
218-01-9	Benzo(a)phenanthrene	Polycyclic aromatic hydrocarbons
50-32-8	Benzo(a)pyrene	Polycyclic aromatic hydrocarbons
205-99-2	Benzo(b)fluoranthene	Polycyclic aromatic hydrocarbons
192-97-2	Benzo(e)pyrene	Polycyclic aromatic hydrocarbons
191-24-2	Benzo(g,h,i)perylene	Polycyclic aromatic hydrocarbons
205-82-3	Benzo(j)fluoranthene	Polycyclic aromatic hydrocarbons
207-08-9	Benzo(k)fluoranthene	Polycyclic aromatic hydrocarbons
117-81-7	*Bis*(2-ethylhexyl)phthalate	
74-83-9	Bromomethane	
106-99-0	1,3-Butadiene	
111-76-2	2-Butoxyethanol	
NA	Cadmium and its compounds	
7789-75-5	Calcium fluoride	Inorganic fluorides
56-23-5	Carbon tetrachloride	
75-69-4	CFC-11	Chlorofluorocarbons
75-71-8	CFC-12	Chlorofluorocarbons
75-72-9	CFC-13	Chlorofluorocarbons
76-14-2	CFC-114	Chlorofluorocarbons
76-15-3	CFC-115	Chlorofluorocarbons
224-42-0	Dibenz(a,j)acridine	Polycyclic aromatic hydrocarbons

CAS No.	Substance	Substance/Class on the List of Toxic Substances
53-70-3	Dibenzo(a,h)anthracene	Polycyclic aromatic hydrocarbons
189-55-9	Dibenzo(a,i)pyrene	Polycyclic aromatic hydrocarbons
194-59-2	7H-Dibenzo(c,g)carbazole	Polycyclic aromatic hydrocarbons
612-83-9	3,3'-Dichlorobenzidine dihydrochloride	
107-06-2	1,2-Dichloroethane	
75-09-2	Dichloromethane	
28679-13-2	Ethoxynonyl benzene	Nonylphenol and its ethoxylates
75-21-8	Ethylene oxide	
206-44-0	Fluoranthene	Polycyclic aromatic hydrocarbons
50-00-0	Formaldehyde	
353-59-3	(Halon 1211) Bromochlorodifluoromethane	
75-63-8	(Halon 1301) Bromotrifluoromethane	
75-45-6	HCFC-22	Hydrochlorofluorocarbons
41834-16-6	HCFC-122 and all isomers	Hydrochlorofluorocarbons
34077-87-7	HCFC-123 and all isomers	Hydrochlorofluorocarbons
63938-10-3	HCFC-124 and all isomers	Hydrochlorofluorocarbons
1717-00-6	HCFC-141b	Hydrochlorofluorocarbons
75-68-3	HCFC-142b	Hydrochlorofluorocarbons
118-74-1	Hexachlorobenzene	
NA	Hexavalent chromium compounds	
7664-39-3	Hydrogen fluoride	Inorganic fluorides
193-39-5	Indeno(1,2,3-c,d)pyrene	Polycyclic aromatic hydrocarbons
NA	Lead (and its compounds, except tetraethyl lead)	
NA	Mercury (and its compounds)	
109-86-4	2-Methoxyethanol	
NA	Nickel and its compounds	
27177-05-5	Nonylphenol hepta(oxyethylene) ethanol	Nonylphenol and its ethoxylates
84852-15-3	Nonylphenol, industrial	Nonylphenol and its ethoxylates
27177-08-8	Nonylphenol nona(oxyethylene) ethanol	Nonylphenol and its ethoxylates
25154-52-3	*n*-Nonylphenol	Nonylphenol and its ethoxylates
9016-45-9	Nonylphenol polyethylene glycol ether	Nonylphenol and its ethoxylates
26027-38-3	*p*-Nonylphenol polyethylene glycol ether	Nonylphenol and its ethoxylates
27986-36-3	Nonylphenoxy ethanol	Nonylphenol and its ethoxylates

CAS No.	Substance	Substance/Class on the List of Toxic Substances
104-35-8	2-(*p*-Nonylphenoxy)ethanol	Nonylphenol and its ethoxylates
20427-84-3	2-(2-(*p*-Nonylphenoxy)ethoxy) ethanol	Nonylphenol and its ethoxylates
7311-27-5	2-(2-(2-(2-(*p*-Nonylphenoxy)ethoxy) ethoxy)ethoxy) ethanol	Nonylphenol and its ethoxylates
104-40-5	4-Nonylphenol	Nonylphenol and its ethoxylates
11104-93-1	Oxides of nitrogen (expressed as NO_2)	
37251-69-7	Oxirane, methyl-, polymer with oxirane, mono(nonylphenol)ether	Nonylphenol and its ethoxylates
NA	Particulate matter with a diameter less than or equal to 2.5 microns ($PM_{2.5}$)	
NA	Particulate matter with a diameter less than or equal to 10 microns (PM_{10})	
198-55-0	Perylene	Polycyclic aromatic hydrocarbons
85-01-8	Phenanthrene	Polycyclic aromatic hydrocarbons
NA	Polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans	
129-00-0	Pyrene	Polycyclic aromatic hydrocarbons
7681-49-4	Sodium fluoride	Inorganic fluorides
2551-62-4	Sulphur hexafluoride	Inorganic fluorides
7446-09-5	Sulphur dioxide	
127-18-4	Tetrachloroethylene	
79-01-6	Trichloroethylene	
75-01-4	Vinyl chloride	
NA	Volatile organic compounds	Volatile organic compounds as defined in the Annex of the *Canada Gazette*

Notes: The list is up to date as of December 18, 2003; NA means no CAS number available at this time.

The substances identified as CEPA toxic in the NPRI are not always identical to those in the list of toxic substances in Schedule 1 of CEPA 1999. Sometimes this is because the NPRI refers to commercial products or common names rather than the scientific name that is often used by CEPA 1999. Sometimes, as in the case of CFCs, several substances listed in the NPRI correspond to a single class of substances in Schedule 1. In other cases, the NPRI list of CEPA-toxic substances is broader than that found in Schedule 1. For example, the NPRI lists nickel and its compounds, but Schedule 1 of CEPA lists only oxidic, sulphidic and soluble inorganic nickel compounds.

More detailed information on releases of substances shown in **table 4–1** can be found in a supplementary table at **www.ec.gc.ca/npri.**

5. Pollution Prevention

5.1 Introduction

Pollution prevention (P2) is defined in CEPA 1999 as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to the environment or human health". As the cornerstone of CEPA 1999, pollution prevention is identified throughout the Act as the priority approach for the protection of the environment and human health.

Pollution prevention seeks to prevent the creation of pollutants rather than managing them after they have been created. This often results in cost savings for a facility.

Since 1997, the NPRI program has required facilities to report whether they are undertaking pollution prevention for listed substances throughout their operations. Facilities may also indicate the extent of such activities and any reductions in emissions that may have resulted. Pollution may include, but is not limited to, the following activities:

- materials or feedstock substitution;
- product design or reformulation;
- equipment or process modification;
- spill and leak prevention;
- on-site reuse, recovery or recycling;
- improved inventory management or purchasing techniques; and
- good operating practices and training.

5.2 Pollution Prevention in 2002

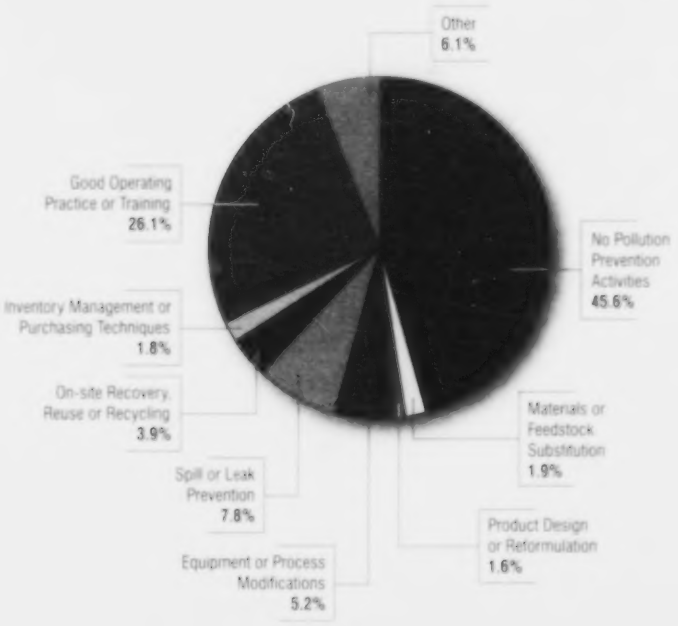
Beginning with the 2002 reporting year, the NPRI reporting form included a more descriptive breakdown of each of the P2 reporting categories. These new sub-categories assist reporting facilities in identifying activities that are reportable as P2. This further subdivision of categories was added after consultations with stakeholders held in 2001. In 2002, approximately 56% (2 534 of 4 504) of facilities reported some form of P2.

5.3 Distribution of Pollution Prevention

In 2002, over 45% of substance reports indicated that no pollution prevention had been undertaken. The most common type of pollution prevention reported was "good operating practice or training" (about 26%). (See **figure 5–1** for the distribution of P2 information.)

Figure 5–1

Distribution of Different Kinds of Pollution Prevention (P2) Information in 2002



5.4 Pollution Prevention and Reasons for Change in Releases, Transfers or Recycling

Throughout the 2002 NPRI reporting form, facilities are required to give reasons for any change in their on-site releases, off-site transfers and off-site recycling from the previous year. One possible reason for such changes could be the implementation of P2 measures.

Of the 24 018 substance reports submitted to the NPRI in 2002:

- 496 substance reports gave P2 activities as the reason for changes in on-site release values;
- 262 substance reports gave P2 activities as the reason for changes in off-site transfers for disposal; and
- 131 substance reports gave P2 activities as the reason for changes in off-site recycling and energy recovery.

5.5 Pollution Prevention Planning for 2002

Beginning in 2002, facilities were asked whether they had drawn up and implemented pollution prevention plans for their operations. Pollution prevention planning is the process of examining current operations and developing a plan to eliminate or reduce pollution at the source. Facilities had the option of indicating if P2 plans were (a) prepared under the requirements of the pollution prevention planning provisions of Part 4 of CEPA 1999; (b) prepared or implemented for another government or Act of Parliament; or (c) prepared or implemented voluntarily. The answers to these questions helped form a more complete picture of pollution prevention in Canada.

Of the 4 530 facilities reporting to the NPRI in 2002, 690 facilities reported having a P2 plan:

- 19 facilities reported P2 planning for a CEPA 1999 requirement;
- 129 facilities reported P2 planning for another government or under another Act of Parliament; and
- 602 facilities reported voluntary P2 planning.

(The numbers do not total 690 because some facilities gave more than one reason for implementing a P2 plan.)

6. Confidential Information

Anyone who submits information to the NPRI may, under section 51 of CEPA 1999, request that the information be treated as confidential.

Section 52 of CEPA 1999 provides that:

Despite Part 11, a request under section 51 may only be based on any of the following reasons:

- the information constitutes a trade secret;
- the disclosure of the information would likely cause material financial loss to, or prejudice to the competitive position of, the person providing the information or on whose behalf it is provided; or
- the disclosure of the information would likely interfere with contractual or other negotiations being conducted by the person providing the information or on whose behalf it is provided.

At the time of publication of this report, 10 facilities had been granted confidential status for information provided to the NPRI for 2002. The following data were reported by those facilities for the 2002 reporting year:

- number of pollutant reports submitted: 24;
- total on-site releases: 481 tonnes;
- total off-site disposal: 2 936 tonnes;
- total off-site transfers for recycling and energy recovery: 141 tonnes.

Data presented in this document and other reports in the 2002 National Overview Series do not include the confidential information referred to above.

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7.2 Web Sites for Substance Information

7.2.1 Environment Canada

The Green Lane: **www.ec.gc.ca**

National Pollutant Release Inventory On-line Data Search: **www.ec.gc.ca/npri**

CEPA Environmental Registry: **www.ec.gc.ca/CEPARegistry**

New and Existing Substances: **www.ec.gc.ca/substances**

List of Toxic Substances (Schedule 1 of CEPA 1999): **www.ec.gc.ca/CEPARegistry/subs_list/Toxicupdate.cfm**

Management of Toxic Substances: **www.ec.gc.ca/toxics**

Mercury: **www.ec.gc.ca/mercury**

7.2.2 Health Canada

Existing Substances Division: **www.hc-sc.gc.ca/hecs-sesc/exsd/index.htm**

7.2.3 International Links

Agency for Toxic Substances and Disease Registry (ATSDR): **www.atsdr.cdc.gov**

Chemfinder: **chemfinder.cambridgesoft.com**

Commission for Environmental Cooperation (CEC): **www.cec.org**

Environmental Defense Scorecard: **www.scorecard.org**

International Agency for Research on Cancer (IARC): **www.iarc.fr**

International Programme on Chemical Safety (IPCS): **www.inchem.org**

National Toxicology Program (NTP): **ntp-server.niehs.nih.gov**

Organisation for Economic Co-operation and Development (OECD): **www.oecd.org/home**

PollutionWatch: **www.pollutionwatch.org**

United Nations Environment Programme (UNEP): **www.unep.org**

World Health Organization: **www.who.int**

7.3 Additional Sources of Information

Agency for Toxic Substances and Disease Registry (ATSDR)
1600 Clifton Road (E29)
Atlanta, GA 30333
U.S.A.
Tel.: (404) 639-6300
Fax: (404) 639-6315
Web site: **www.atsdr.cdc.gov**

Canadian Centre for Occupational Health and Safety
Chemical Evaluation Search and Retrieval System (CESARS)
250 Main Street East
Hamilton, ON L8N 1H6
Tel.: (905) 570-8094
Fax: (905) 572-2206
Web site: **www.ccohs.ca/products/databases/cesars.html**

Commission for Environmental Cooperation (CEC)
393 St. Jacques Street West
Suite 200
Montreal, QC H2Y 1N9
Tel.: (514) 350-4300
Fax: (514) 350-4314
Web site: **www.cec.org**

Health Canada
Publishing Coordinator
Environmental Health Centre
Tunney's Pasture 0801B3
Ottawa, ON K1A 0L2
Tel.: (613) 957-3143
Fax: (613) 941-8632
Web site: **www.hc-sc.gc.ca**

International Agency for Research on Cancer (IARC)
150 cours Albert Thomas
F-69372 Lyon cedex 08
France
Tel.: +33 (0)4 72 73 84 85
Fax: +33 (0)4 72 73 85 75
Web site: **www.iarc.fr**

National Library of Medicine (TOXNET)
8600 Rockville Park, Bldg. 38A
Bethesda, MD 20894
U.S.A.
Tel.: (301) 496-6531
Fax: (301) 480-3537
Web site: **www.nlm.nih.gov/hinfo.html**

Appendix A: Overview of the NPRI

The National Pollutant Release Inventory (NPRI) is at the centre of the Government of Canada's efforts to track toxic substances. It is a legislated inventory of pollutants released to the environment. The NPRI was established in 1992 to provide Canadians information on releases of pollutants from facilities located in their communities, including quantities discharged to air, water, land, and underground injection and quantities sent to other facilities for disposal, treatment or recycling and energy recovery. It also supports a number of environmental initiatives by providing information that:

- helps governments and others to identify priorities for action;
- encourages industry to take proactive measures to reduce releases;
- allows for tracking of progress in reducing releases;
- supports international commitments; and
- provides information to support the development of new control instruments such as codes of practice, regulations and guidelines, etc.

The NPRI is a constantly evolving program. Public and stakeholder consultation is an integral part of the changes to the program. Since its inception, substances have been added and deleted, the thresholds at which substances are reported have been adjusted and the scope of the inventory has been expanded to collect data on recycling and pollution prevention activities. Further refinements are planned for future years.

The NPRI program is delivered by Environment Canada under the authority of the *Canadian Environmental Protection Act, 1999* (CEPA 1999). Owners or operators of facilities that manufacture, process, or otherwise use one or more of the NPRI-listed substances under prescribed conditions are required to submit an annual report to Environment Canada on the releases and transfers of those substances.[1] See **Appendix B** for definitions of releases, disposals and transfers.

All non-confidential information collected through the NPRI is available to the public on Environment Canada's Web site in the form of downloadable databases, reports and analyses, and through a query site that allows the user to view information submitted by an individual facility.

For more information, refer to Environment Canada's NPRI Web site at **www.ec.gc.ca/npri** or contact your nearest NPRI office.

What's New for the 2002 NPRI?

The following changes were made to the NPRI for the 2002 reporting year:

Addition of New Substances

- Hexavalent chromium compounds
- Criteria air contaminants (CAC)
  - Carbon monoxide (CO)
  - Oxides of nitrogen (NO_x)
  - Sulphur dioxide (SO_2)
  - Particulate matter (PM)
    - equal to or less than 2.5 microns in diameter ($PM_{2.5}$)
    - equal to or less than 10 microns in diameter (PM_{10})
    - total particulate matter (TPM)
  - Volatile organic compounds (VOCs)

[1] *The requirements for the 2002 NPRI were published in the* Canada Gazette, *Part I, on December 29, 2001.*

Changes in Mass and Concentration Thresholds

- Cadmium (and its compounds): the threshold for reporting based on mass was reduced from 10 tonnes to 5 kg and 0.1% concentration.
- Arsenic (and its compounds), Lead (and its compounds), Hexavalent Chromium and Tetraethyl Lead: the threshold for reporting was based on mass reduced from 10 tonnes to 50 kg and 0.1% concentration.
- Chromium (and its compounds) no longer includes hexavalent chromium.

Changes Where Employee Threshold (20 000 hours) Does Not Apply

- Throughput reduced from 100 to 26 tonnes per year for non-hazardous, solid waste, biomedical and hospital waste incineration.
- Terminal operations (for storage/transfer of crude and refined petroleum products).
- Discharges from wastewater collection systems of 10 000 m^3 or more into surface waters.

Changes to Exemptions for Specific Facilities

- Painting, stripping or rebuilding components for maintenance and repair of transportation vehicles now included in the NPRI.
- Terminal operations used in the distribution, storage of fuels for retail sale are now included in the NPRI.

Pollution Prevention

- Reporting of pollution prevention activities has been expanded.

Administrative Changes

- Facilities that reported in 2001 must notify Environment Canada if they're not reporting for 2002.

Changes in Definitions

- Facility – now includes pipeline installation.
- Other use – includes use or disposal.

NPRI Substance List for 2002

For the 2002 reporting year, there were 273 substances listed on the NPRI; 82 have been declared toxic under CEPA 1999. There were 241 substances listed with the original 1993. Other reports indicate NPRI reporting criteria of 10 tonnes and 1% concentration, excluding by-products. Thirty-two substances are listed with different reporting criteria – mercury, cadmium, arsenic, lead and their compounds, hexavalent chromium compounds, tetraethyl lead, 17 individual polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzo-*p*-dioxins (dioxins)/polychlorinated dibenzofurans (furans), hexachlorobenzene (HCB) and seven CAC.

The CAC were added to the NPRI for the 2002 reporting year. As a result, the total number of substance reports submitted for the 2002 NPRI has almost doubled compared to 2001. Information on CAC is summarized separately from other NPRI substances which for the purposes of this report are referred to as "NPRI pollutants".

The total list of NPRI substances for the 2002 reporting year can be found on the NPRI Web site at **www.ec.gc.ca/npri.**

2002 National Overview Series

The 2002 NPRI National Overview (referred to as the "2002 National Overview") consists of the following series of documents:

- 2002 National Overview – Reporting Requirements;
- 2002 National Overview – Summary of Data;
- 2002 National Overview – On-site Releases of NPRI Pollutants;
- 2002 National Overview – Final Disposal and Off-site Transfers for Treatment Prior to Final Disposal; and
- 2002 National Overview – Off-site Transfers for Recycling and Energy Recovery.

The 2002 National Overview Series includes data as they appeared in the NPRI database on December 18, 2003.

In addition to the National Overview Series, Environment Canada has developed another report entitled *Informing Canadians on Pollution*. This report provides a snapshot of pollution from industrial and commercial companies in Canada. In addition to making progress on sector and pollutant releases and disposal and recycling trends, other highlights include special sections on toxic substances, pollution prevention, managing pollution in Canada, and tips on how communities and individuals can use the NPRI.

New Groupings for Releases and Transfers

The following groupings were used to summarize information collected through the NPRI for the 2001 reporting year and continued for the 2002 reporting period:

- On-site Pollutant Releases
  - air
  - water
  - land: includes spills, leaks and other
- Disposal
  - on-site disposal: landfill, land treatment and underground injection
  - off-site disposal: landfill, land treatment, underground injection and storage
  - off-site transfers for treatment prior to final disposal:
    - physical treatment
    - chemical treatment
    - biological treatment
    - incineration or thermal treatment where energy is not recovered
    - treatment at a municipal sewage treatment plant (MSTP)
- Off-site Transfers for Recycling and Energy Recovery
  - recycling
  - energy recovery

As a result of consultations with stakeholders, new groupings were developed for on-site releases. It should be noted that "releases to land" no longer include disposal. The new groupings are different from those found in the *Guide for Reporting to the National Pollutant Release Inventory 2002*. In 2003, these changes were included in the *Guide for Reporting to the National Pollutant Release Inventory 2003* and the software for reporting to the NPRI.

Appendix B: Detailed Data Elements Reported to the NPRI

On-site Releases

An on-site release is a discharge of an NPRI-listed pollutant to the environment, within the physical boundaries of the facility. This includes:

- emissions to air – discharges through a stack, vent or other point release, losses from storage and handling of materials, fugitive emissions, spills and accidental releases, and other non-point releases.
- releases to surface waters – discharges, spills and leaks, but not including discharges to municipal wastewater treatment plants (which are reported under off-site transfers for treatment).
- releases to land – spills, leaks, and other.

Final Disposal Activities – On Site and Off Site

The following activities or operations are included in the category classified as "final disposal" – on site and off site:

- containment – two forms of containment are identified:
  - i) landfill; and
  - ii) other storage;
- underground injection at an off-site location;
- land treatment – for the purpose of land application or land farming; and
- off-site final disposal for storage.

Off-site Transfers for Treatment Before Final Disposal

A shipment of an NPRI-listed substance may be transferred to an off-site location for treatment prior to final disposal. The treatment processes include:

- physical treatment (e.g., drying, evaporation, encapsulation or vitrification);
- chemical treatment (e.g., precipitation, stabilization or neutralization);
- biological treatment (e.g., bio-oxidation);
- incineration or thermal treatment where energy is not recovered; and
- treatment at a municipal sewage treatment plant.

Off-site Transfers for Recycling and Energy Recovery

A shipment of an NPRI-listed substance may be transferred to an off-site location for recycling and energy recovery. "Recycling" refers to activities that keep a material or a component of the material from becoming a waste destined for final disposal. Nine types of recycling operations are identified:

- recovery of solvents;
- recovery of organic substances (other than solvents);
- recovery of metals and metal compounds;
- recovery of inorganic materials (other than metals);
- recovery of acids and bases;
- recovery of catalysts;
- recovery of pollution abatement residues;
- refining or reuse of used oil; and
- other recovery, reuse or recycling activities.

An NPRI substance may be sent for energy recovery when the substance or the material containing it has sufficient energy content (BTU value) to allow its use as an alternative to fossil fuels or other forms of energy.

Appendix C: 2000 Criteria Air Contaminants Emissions for Canada (tonnes)

CATEGORY / SECTOR / PROVINCES	PART	PM_{10}	$PM_{2.5}$	SO_x	NO_x	VOC	CO
INDUSTRIAL SOURCES							
Abrasives Manufacture	394	235	215	859	96	794	239
Aluminum Industry	12 495	7 537	4 380	49 246	892	1 645	226 028
Asbestos Industry	42	34	20	475	151	1	15
Asphalt Paving Industry	35 896	6 202	2 018	136	201	924	949
Bakeries	0	0	0	0	4	6 724	2
Cement and Concrete Industry	12 127	7 818	3 420	37 056	37 388	276	14 796
Chemicals Industry	7 176	4 538	2 722	10 822	28 675	4 128	17 754
Clay Products Industry	1 728	510	364	414	164	10	392
Coal Mining Industry	10 380	6 400	2 844	1 958	1 538	807	46
Ferrous Foundries	2 225	1 825	1 377	1 437	334	1 646	4 135
Grain Industries	57 614	11 873	1 903	0	0	0	0
Iron and Steel Industries	21 131	12 706	8 696	27 472	14 917	19 631	38 484
Iron Ore Mining Industry	45 767	27 222	13 151	17 482	10 117	3 231	64 777
Mining and Rock Quarrying	98 334	13 297	3 241	5 988	10 641	384	2 930
Non-Ferrous Mining and Smelting Industry	14 782	11 552	5 810	766 533	3 861	57	718
Oil Sands	4 221	3 010	611	92 021	43 985	34 304	39 323
Other Petroleum and Coal Products Industry	577	295	88	1	124	204	20
Paint & Varnish Manufacturing	72	59	22	0	24	2 566	11
Petrochemical Industry	158	140	110	383	11 809	7 763	4 122
Petroleum Refining	7 713	5 024	3 211	128 353	31 927	27 485	21 951
Plastics & Synthetic Resins Fabrication	50	37	26	54	287	10 095	532
Pulp and Paper Industry	48 674	29 974	22 949	73 626	51 611	23 507	161 556
Upstream Oil and Gas Industry	1 690	1 528	1 522	349 382	338 885	739 760	81 774
Wood Industry	118 887	67 592	34 778	2 688	14 726	46 213	548 620
Other Industries	57 957	36 529	25 451	24 806	40 040	60 392	45 949
TOTAL INDUSTRIAL SOURCES	560 089	255 935	138 931	1 591 196	642 396	992 547	1 275 122
NON INDUSTRIAL FUEL COMBUSTION							
Commercial Fuel Combustion	5 022	3 797	3 064	20 548	31 506	6 549	8 080
Electric Power Generation (Utilities)	121 609	55 418	21 737	639 780	298 241	2 406	29 197
Residential Fuel Combustion	4 639	3 865	3 623	14 809	36 943	2 283	13 954
Residential Fuel Wood Combustion	107 168	101 418	101 308	1 428	9 988	147 447	662 032
TOTAL NON INDUSTRIAL FUEL COMBUSTION	238 437	164 498	129 732	676 565	376 677	158 686	713 263
TRANSPORTATION							
Air Transportation	2 151	1 319	1 013	3 504	57 556	9 726	57 219
Heavy-duty diesel vehicles	15 542	15 542	14 350	9 706	514 518	23 417	124 895
Heavy-duty gasoline trucks	256	249	191	408	15 386	8 512	134 844
Light-duty diesel trucks	887	887	818	554	7 162	3 425	6 107
Light-duty diesel vehicles	296	296	272	95	1 965	843	1 927
Light-duty gasoline trucks	1 213	1 179	992	6 131	120 116	148 494	2 302 568
Light-duty gasoline vehicles	1 068	1 038	986	8 500	190 091	219 152	3 150 457
Marine Transportation	5 610	5 610	5 361	32 976	111 416	9 349	13 613
Motor cycles	13	12	9	19	848	1 274	8 559
Off-road use of diesel	41 510	41 510	38 189	15 631	371 032	46 276	220 126
Off-road use of gasoline	6 360	6 360	5 863	1 159	53 504	251 274	2 333 895
Rail Transportation	2 571	2 567	2 365	4 193	109 481	5 400	20 776
Tire wear & Brake lining	5 112	5 055	1 747	0	0	0	0
TOTAL TRANSPORTATION	82 589	81 623	72 157	82 875	1 553 074	727 142	8 374 986

Appendix C: 2000 Criteria Air Contaminants Emissions for Canada (tonnes) Cont'd

CATEGORY / SECTOR / PROVINCES	PART	PM_{10}	$PM_{2.5}$	SO_x	NO_x	VOC	CO
INCINERATION							
Crematorium	0	0	0	4	22	1	10
Industrial & Commercial Incineration	25	19	13	278	348	331	1,107
Municipal Incineration	578	354	313	695	1 596	989	3 421
Other Incineration & Utilities	516	303	230	563	4 334	723	1 641
TOTAL INCINERATION	1 120	676	555	1 540	6 300	2 043	6 179
MISCELLANEOUS							
Cigarette Smoking	879	879	879	0	6	10	3 148
Dry Cleaning	0	0	0	0	2	841	1
Fuel Marketing	0	0	0	11	5	91 062	2
General Solvent Use	0	0	0	0	0	309 452	0
Marine Cargo Handling Industry	2 902	1 395	423	0	0	1	0
Meat Cooking	1 528	1 528	1 528	0	0	0	0
Pesticides and Fertilizer Application	12 054	5 906	1 687	0	0	0	0
Printing	12	4	4	0	34	34 614	27
Structural Fires	4 344	4 300	3 910	0	2	4 211	8 729
Surface Coatings	0	0	0	0	0	110 752	0
TOTAL MISCELLANEOUS	21 718	14 012	8 432	11	49	550 944	11 907
OPEN SOURCES							
Agriculture (Animals)	263 315	148 387	23 455	0	0	214 826	0
Agriculture Tilling and Wind Erosion	1 713 507	833 911	23 243	0	0	0	0
Construction Operations	3 374 356	742 355	15 036	0	0	0	0
Dust from Paved Roads	2 885 947	553 141	132 338	0	0	0	0
Dust from Unpaved Roads	7 057 123	2 238 143	333 493	0	0	0	0
Forest Fires	90 969	75 759	63 465	90	20 917	85 979	693 373
Landfills Sites	4 224	486	130	1	169	8 576	693
Mine Tailings	47 626	3 810	953	0	0	0	0
Prescribed Burning	31 363	22 756	21 387	146	3 942	10 866	206 863
TOTAL OPEN SOURCES	15 468 430	4 618 749	613 499	237	25 029	320 246	900 929
NATIONAL TOTAL							
TOTAL WITH OPEN SOURCES	16 372 382	5 135 494	963 305	2 352 424	2 603 525	2 751 607	11 282 385
TOTAL WITHOUT OPEN SOURCES	903 952	516 745	349 806	2 352 187	2 578 496	2 431 361	10 381 456

Note: Numbers may not add to totals, due to rounding.